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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,560	01/25/2001	Michael Benjamin Ronci		5145

7590 06/26/2007

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EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	PAPER NUMBER
2859	

MAIL DATE	DELIVERY MODE
06/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/768,560	RONCI, MICHAEL BENJAMIN	
	Examiner	Art Unit	
	Gail Verbitsky	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 9-16 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama in view of Palmer (U.S. 5128616).

Maruyama discloses a ceramic mug (col. 21, line 24), a thermochromic display comprising thermochromic ink layer applied onto a film (supporting substrate) having an image (indication marks). The thermochromic display applied/ printed directly onto an outer surface of the ceramic mug. When hot water/ 70 degrees C (hot beverage) is poured into the mug, the thermochromic ink layer becomes transparent (from opaque) revealing image 3, as shown in Fig. 6 (col. 21, example 4).

Maruyama discloses a device in the field of applicant's endeavor including all the subject matter claimed by applicant with the exception of the plurality of segments.

Palmer discloses a device n the field of applicant's endeavor wherein a thermochromic indicator ink layer 50 having a plurality (three) portions, each portion is responsive to its own threshold temperature, and thus becoming transparent at their own temperature revealing a plurality segments /windows, wherein each segment reveals different color (mark) at said temperature thresholds. The thermochromic ink layer turns from colored/ opaque to transparent at room temperature. It is inherent, that at some temperatures, i.e., intermediate temperature (second threshold temperature) between the first threshold temperature and the third threshold temperature) the

thermochromic ink is only partially opaque (col. 3, col. 4). The indicator can be attached to a surface with an adhesive.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display, disclosed by Maruyama, so as to have a plurality of different thermochromic segments, as taught by Palmer, responding to different temperatures by revealing different windows (marks), so as to allow the operator to not only see a critical data, but also to allow the operator to see an image (marks) corresponding to intermediate temperatures, in order to make the device usable with different types of object of interest, especially when very fine accurate thermal response is needed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Maruyama, so as to be able to attach the display to the surface of interest (mug) with an adhesive applied to the substrate (film), as taught by Palmer, in order to allow the user to replace it should the indicator become damaged, and thus, to make the mug reusable.

Response to Arguments

3. Applicant's arguments filed on March 21, 2007 have been fully considered but they are not persuasive.

Applicant states that palmer is non-analogous art reference. This argument is not persuasive because, it has been held that the determination that a reference is from non-analogous art is twofold. First, we decide if the reference is within the filed of inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. In

re Wood, 202 USPQ 171, 174. In this case, the examiner uses Palmer only as a secondary reference for its teaching of the particular display segments.

Applicant states that St. Phillips is directed to the use of LCD while the present invention is directed to the thermochromic ink. This argument is not persuasive because in the rejection on the merits mailed on 11/29/2007, St. Phillips has not been applied.

Claims 9-16 were rejected as obvious over Maruyama and Palmer.

Applicant states that Maruyama is directed to a single ink segment, while the applicant's application is directed to multiple ink segments. This argument is not persuasive because Palmer is directed to multiple ink segments with different thermal charachteristics and thus, the combination of Maruyama and Palmer teaches the claimed invention. Also, having a plurality of segments, absent any criticality, is only considered to be an obvious modification of the system disclosed by Maruyama. While the addition of multiple heat exchangers to the concept of Maruyama undoubtedly makes the invention more useful with a plurality of segments, it is not the type of innovation for which a patent monopoly is to be granted. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).

Conclusion

4. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Schultz (U.S. 4916386) discloses a device n the field of applicant's endeavor wherein a fluid in a container/ vessel heats and rise in temperature causing a specific liquid crystal member/ segment of the strip to change color (or reveal a mark/ indicia) to therefore designate a specific power (col. 1, lines 62-66) and temperature. Although the strip is calibrated in energy units, it is sensitive to temperature change (entire col. 2), i.e., changing color at corresponding temperature, and, then calibrated in Watts. The device can be attached with an adhesive.

GB 1228232 discloses a thermochromic surface temperature indicating material comprising an array (segments) of the thermochromic materials of increasing transition temperature differently responding to different temperatures.

Weiss (U.S. 5830596) discloses in Fig. 8 a thermochromic display 24, 23 comprising a thermochromic layer 24 covering a mark/ indicia 23. The thermochromic

ink goes from colored (opaque) to colorless (transparent) to reveal the mark/ indicia 23 underneath of it when exposed to a predetermined (activation) temperature/ heating from a surface of interest (battery). Weiss teaches that the thermochromic material could be either liquid crystal or thermochromic ink.

Heinmets et al. (U.S. 4156365) disclose a device/ thermochromic indicator 14 applied to an exterior wall of a food vessel (mug, col. 1, line 46) 10. The indicator has markers (marks) 16 and 18. The strip has an additional strip, which changes from transparent (clear) to a color marker 16 to indicate reaching or exceeding a predetermined temperature.

NL 1013024C2 discloses a temperature indicator/ display comprising a surface thermochromic ink layer that is transparent over a given temperature range, the layer covering at least one LC the color of which depends/ changing on the temperature measured. The temperature indicator can be attached to a beverage vessel (baby bottle with milk).

Klima discloses in Figs. 1-4 a heat-sensitive thermochromic display/ device (label) attachable to a surface of interest. The device comprises a support layer impregnated with a liquid crystal (thermochromic) layer 16, and, when activated by heating/ predetermined temperature, the layer 16 becoming transparent to light (col. 4, line 54) and an indicia/ mark/ information/ message 12 (HOT) becomes visible/ revealed to the user (as opposed to opaque when cooled). The display also comprises a base/ substrate 14 and an adhesive layer 23 to directly apply/ print the display having the substrate 14 and the adhesive layer 23 onto a surface of interest.

GB 2401176A discloses a device in the field of applicant's endeavor wherein a thermochromic inks are revealing a mark/ word "hot" or become faded (opaque) when a beverage inside a container is cold.

St. Phillips (U.S. 4933525) discloses a device n the field of applicant's endeavor wherein a thermochromic indicator comprises a plurality segments revealing different color at different temperature. The indicator can be attached with an adhesive.

Wunderlich discloses a thermochromic temperature indicator (display) comprising plurality thermochromic ink segments 50, 52, 64, 56 visible through windows 42, 44, 46, 48 and having different thresholds (transition temperatures). The thermochromic segments are adapted to be converted from opaque to transparent at different temperatures revealing a colored paint (marks) through a respective window. The color mark is corresponding to temperature and humidity. Although calibrated for determining humidity, the indicator is responsive to temperature change and goes from opaque to transparent at different temperatures 9col. 4, lines 1-2). The display can be attached to a surface of interest by an adhesive (col. 3, lines 53-68 and col. 4, lines 1-6). Wunderlich also states that numerous types of thermochromic ink having different threshold temperatures (different segments) are available commercially (col. 3, lines 60-65).

Manico et al. (U.S. 6113857) disclose a device in the field of applicant's endeavor, the device having a support/substrate 11, and adhesive layer 13 attached to the support with one side and adhesively attaches/ printed onto a surface of interest with another side.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800

May 25, 2007